

# Hydrology Training Options

## Courses Available at Each Field Office

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### Correspondence Course: Operations of the NWS Hydrologic Services Program

This course was introduced in March 1997 by the Office of Hydrology. Every WFO should have 2 copies of this course available on station. This is a 10 chapter course (with 10 corresponding tests) intended to introduce the NWS Hydrology Program, as well as introduce some elementary hydrology concepts. Due to the basic nature of this course, it is a good “building block” for other NWS hydrology training opportunities.

## Residence Courses

### Hydrology Program Manager Course (NWSTC Correspondence Course)

As of March 2000, this course is still in the development phase. The purpose of the course will be, to provide Hydrology Program Managers with the basic knowledge needed to effectively manage a WFO hydrology program. The course content will be similar to the contents of this book, but will contain much more detailed information and additional subjects. This course is designed to be a short residence course that will include some additional and follow-up computer based training. It incorporates elements from the former Basic Operational Hydrology (BOH) course and the WHFS course, offered by the NWSTC.

**Web site:**

[http://www.nwstc.noaa.gov/d.HMD/HMD\\_HYD.HTML](http://www.nwstc.noaa.gov/d.HMD/HMD_HYD.HTML)

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### Hydrometeorology (COMET)

This is a residence course hosted by COMET in Boulder, Colorado. This course is primarily designed for the operational hydrologist. The goal of the course is to provide attendees with the knowledge of how the sciences of meteorology and hydrology interact with each other, and how this interaction relates to forecasting flood and flash flood events. The course is taught at an upper-undergraduate level, providing case studies and experience with current and new

hydrometeorological observing systems.

**Web site:**

<http://www.comet.ucar.edu/>

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### **WHFS (NWSTC)**

The NWSTC offers a 3.5 day course which focuses primarily on developing the basic proficiencies needed to use WHFS. The course provides hands-on experience with the three components of WHFS: HydroBase, HydroView, and RiverPro. The three components of the system are discussed in detail, as well as managing the system and troubleshooting problems. When an individual returns to his/her office, he/she should have obtained the knowledge and skills necessary to manage the system and train the staff. This short course will eventually be incorporated into the Hydrology Program Manager Course that was discussed above.

**Web site:**

[http://www.nwstc.noaa.gov/d.HMD/HMD\\_HYD.HTML](http://www.nwstc.noaa.gov/d.HMD/HMD_HYD.HTML)

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### **Computer-based Training Modules**

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#### **Hydrology for the Meteorologist: Basic Hydrology for Headwater Forecasting**

This is the first module in a two part hydrology series. This module provides an introduction to hydrologic principles, and the use of a hydrologic model in headwater forecasting. The basic components of the hydrologic cycle discussed in the module will help an operational forecaster employ hydrologic reasoning to an interactive case study. The module consists of three sections: Introduction, Tutorial Case, and Hydrologic Science.

**Web site:**

<http://www.comet.ucar.edu/modules/index.htm>

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### **Heavy Precipitation and Flash Flooding**

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This module provides introductory basics for understanding the multiple factors and conditions that an operational forecaster must take into account when forecasting flash flood events. It covers key questions and concepts that must be considered in order to correctly forecast heavy precipitation and/or flash flood events. The module tries to improve analytical skills necessary for flash flood forecasting, by demonstrating key flash flood forecasting and monitoring methodologies through step by step observations and analysis.

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**Web site:**

<http://www.comet.ucar.edu/modules/index.htm>

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### **Correspondence Courses**

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#### **Hydrology I (USDA Correspondence Course)**

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This course covers: elementary meteorology and statistics; measurement and interpretation of streamflow, precipitation and other basic data; hydrologic cycle; physics of soil moisture; infiltration theory; and rainfall runoff relationships.

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**Web site:**

[http://grad.usda.gov/programs\\_services/corres/cop.cfm](http://grad.usda.gov/programs_services/corres/cop.cfm)

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#### **Hydrology II (USDA Correspondence Course)**

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This course covers: the use of hydrologic data to forecast stream flow and stage hydrographs, to route hydrographs to points downstream, and to estimate parameters (needed in water control structure design work) such as flood and drought frequencies; digital simulation; hydraulic routing; stochastics; and water chemistry.

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**Web site:**

[http://grad.usda.gov/programs\\_services/corres/cop.cfm](http://grad.usda.gov/programs_services/corres/cop.cfm)

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### **Courses Offered Via the Internet**

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#### **SHEF Tutorial (NWSTC home page)**

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The SHEF tutorial is web based, and available for downloading from the

NWSTC home page. Look for it as part of the Forecaster Development Program - Professional Development Series, which is under the section titled: "Hydrometeorology and Management Training".

The tutorial covers the basics of SHEF encoding and decoding, and offers interactive exercises.

**Web site:** [http://www.nwstc.noaa.gov/d.HMD/HMD\\_HYD.HTML](http://www.nwstc.noaa.gov/d.HMD/HMD_HYD.HTML)

### **Hydrology - CE 5843 (University of Oklahoma Web Course)**

The University of Oklahoma used to offer a Hydrology correspondence course. They no longer offer this course. They now offer a Civil Engineering Hydrology course via the web.

This Hydrology course is an applied course on hydrology dealing with environmental water problems, principles of hydrologic systems - their structure, and components, methods of analysis and their application to various purposes of water resources planning and development.

**Web site:** <http://www.occe.ou.edu/corres.html>

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### **Hydrology for the Meteorologist: The Headwater Forecast Process**

This internet based course is part two in a hydrology training series that is offered by COMET. This course builds upon the hydrology concepts discussed in the first part of the training series - CD-ROM: ***Hydrology for the Meteorologist: Basic Hydrology for Headwater Forecasting.***

**Web site:** <http://www.comet.ucar.edu/modules/hyd1/index.htm>

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### **Spatial Hydrology using ARCVIEW GIS**

This course is offered from the Environmental Systems Research Institute (ESRI) Virtual Campus home page. It is a 6 module course that provides an introduction to the synthesis of geographic information systems (GIS), and the

field of Hydrology. This synthesis between the two disciplines, is called spatial hydrology. The goals of the course, cost, enrollment instructions, and a description of all 6 modules, can be found on the Virtual Campus home page.

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**Web site:**

<http://www.esri.com/>

